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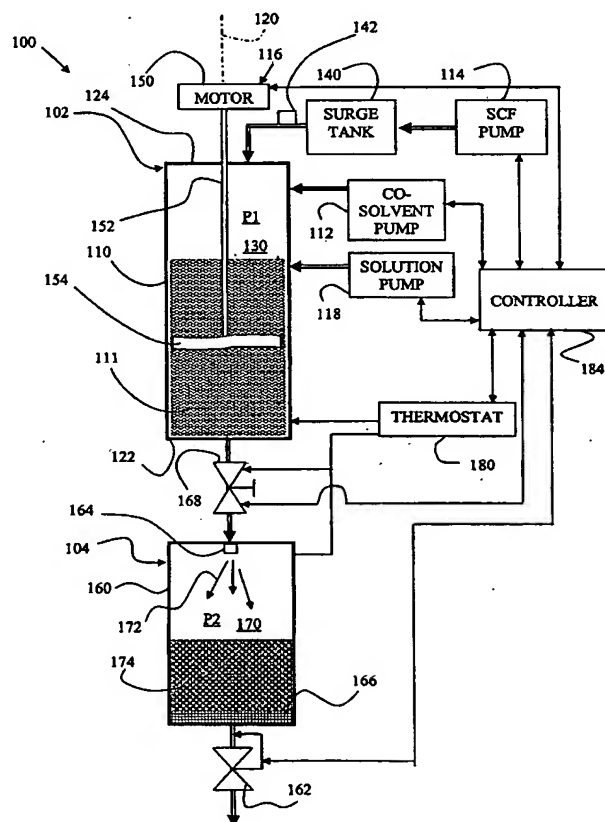
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(54) Title: METHODS AND APPARATUS FOR PRODUCING COMPOSITE PARTICLES USING SUPERCRITICAL FLUID AS PLASTICIZING AND EXTRACTING AGENT



(57) Abstract: The present invention provides methods and apparatus for producing composite particles using supercritical fluid as a plasticizing and extracting agent. The methods employ providing a polymer, wax and/or a lipid substance that is solid at standard temperature and pressure to be contacted with a supercritical fluid in vessel (10) to form a melt, either before or after the substance is contacted with a solution made up of solute dissolved in a solvent. The supercritical fluid plasticizes the substance and extracts the solvent from the solution, resulting in the formation of a two-fraction system including a first melt-rich fraction that includes the plasticized melt and dispersed fine particles of precipitated solute, and a second fraction that includes the supercritical fluid and the solvent. The first fraction is expanded in expansion chamber (160) across a pressure drop resulting in formation of composite particles that include the polymer, wax and/or lipid and the solute.



Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : B01D 11/00 US CL : 210/634 According to International Patent Classification (IPC) or to both national classification and IPC																				
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 210/634,638,639,774,806; 264/4.2-4,4,5,7,12-14; 424/422-427,463-470,484-502 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST TEXTSEARCH: search terms: particles, supercritical, melt, pharmaceutical\$3, solution or solvent																				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b> <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>US 6,488,952 A (KENNEDY et al) 03 December 2002, see entire document.</td> <td>1-44</td> </tr> <tr> <td>Y</td> <td>US 6,248,363 A (PATEL et al) 19 June 2001, see entire document.</td> <td>1-44</td> </tr> <tr> <td>Y</td> <td>US 6,414,050 A (HOWDLE et al) 07 July 2002, see entire document.</td> <td>1-44</td> </tr> <tr> <td>X</td> <td>US 5,548,004 A (MANDEL et al) 20 August 1996, see entire document.</td> <td>45</td> </tr> </tbody> </table>			Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	US 6,488,952 A (KENNEDY et al) 03 December 2002, see entire document.	1-44	Y	US 6,248,363 A (PATEL et al) 19 June 2001, see entire document.	1-44	Y	US 6,414,050 A (HOWDLE et al) 07 July 2002, see entire document.	1-44	X	US 5,548,004 A (MANDEL et al) 20 August 1996, see entire document.	45			
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Joseph W. Drodge <i>[Signature]</i> Telephone No. 571-272-1700																		



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